Agile, Steady Response Of Inertial, Constrained Holonomic Robots Using Nonlinear, Anisotropic Dampening Forces

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Summary

In this paper, the harmonic potential field (HPF) approach to motion planning is adapted to work with second order mechanical systems. The extension is based on a novel type of dampening forces called: nonlinear, anisotropic, dampening forces (NADFs). It is shown that NADFs are effective aids for planning spatially-constrained kinodynamic trajectories for mechanical systems. Theoretical developments and simulation results are provided in the paper